

**DII.3003.AIX414.Kernel.VDD-1**

**Defense Information Infrastructure (DII)**

**Common Operating Environment (COE)**

**Version 3.0.0.3**

**Version Description Document for the Kernel (AIX 4.1.4)**

**October 20, 1997**

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**NOTE:** Courier font is used to indicate entries to be typed at the keyboard, UNIX commands, file and directory names, and screen text. For example:

The file is located in the `DII_DEV` directory.

## 1. System Overview

The Defense Information Infrastructure (DII) Common Operating Environment (COE) will normally make available a large number of segments, not all of which are required for every application. The DII COE Kernel is the minimum set of software required on every workstation regardless of how the workstation will be used. The DII COE Kernel for AIX 4.1.4 includes the following components:

- C AIX 4.1.4 Operating System (installed before the DII COE Kernel)
- C System Administration function
- C Security Administration function (including Accounts and Profiles)
- C Runtime tools
- C Commercial Off-the-Shelf (COTS) software [including desktop graphical user interface (GUI) and windowing environment]
- C Government Off-the-Shelf (GOTS) software.

These components can be broken down into the following features:

### Operating System

AIX 4.1.4 Operating System. Reference the *DII COE Kernel Installation Guide (AIX 4.1.4)* for information about installing the AIX 4.1.4 Operating System.

### System Administration Function

The System Administration function is used to provide the capability to print ASCII text, select and configure printers, perform local queue management, manage print jobs, and close windows; reboot or shut down the system, mount file systems, and format hard drives; load or install segments; and change machine ID, set system time, configure a workstation as either a DNS client or a server, set routing configuration, and configure Network Information Service (NIS). The system administrator's account group sets the system administrator's environment to execute the functions listed above. Reference the *DII COE System Administrator's Guide (HP and Solaris)* for more information about System Administration functionality.

## Security Administration Function

The Security Administration function provides the ability for authorized users to create, delete, and maintain user accounts and UNIX groups, as well as to define *profiles*, which provide users with easy access to the executables and icons they need to perform their duties. (Profiles provide a mechanism by which a security administrator can group sets of users, often by their job responsibilities, to appropriate applications.) Refer to the *DII Security Manager's Guide* for more information about Security Administration functionality.

## Runtime Tools

Runtime tools are used to support the segment installation process. The following runtime tools are included on the DII COE 3.0.0.3 Kernel tape. Some of the tools can be run from the command line, and some can be run from other code using published Application Programmer Interfaces (APIs). The COEInstaller tool can also be run from the System Administration pull-down menu. Reference the *DII COE Programming Guide (AIX 4.1.4)*, the *DII COE API Reference Guide (AIX 4.1.4)*, and the *DII COE Integration and Runtime Specification* for more information about these tools and their functionality.

- C **COEAskUser** Version 1.0.0.6—Displays a message to the user and expects the user to choose one of two buttons in response. The COEAskUser tool can be called from anywhere.
- C **COEFindSeg** Version 1.0.0.6—Returns information about a requested segment.
- C **COEInstaller** Version 1.0.0.9—Displays a list of segments that may be installed from tape, disk, or other electronic media. The COEInstaller tool can be run from the command line, as well as from the System Administration pull-down menu.
- C **COEInstError** Version 1.0.0.6—Displays an error message to the user. It can be run from the command line, but it is most often called from within a `PreInstall`, `PostInstall`, or `DEINSTALL` script.
- C **COEMsg** Version 1.0.0.6—Displays a message to the user from within a `PreInstall`, `PostInstall`, or `DEINSTALL` script.
- C **COEPrompt** Version 1.0.0.6—Displays a message to the user and expects the user to enter a response from within a `PreInstall`, `PostInstall`, or `DEINSTALL` script.
- C **COEPromptPasswd** Version 1.0.0.6—Displays a message to the user and waits for the user to enter a password. The COEPromptPasswd tool can be run from the command line, but it is most often called from within a `PreInstall` or `PostInstall` script.
- C **COEUpdateHome** Version 1.0.0.4—Updates the home environment within a script file to point to where a segment actually was installed.

## COTS Software

The following COTS software helps to provide the foundation of the DII COE software environment:

- C **X Windows** (Version X11R5)
- C **Motif** (Version 1.2.4)
- C **Common Desktop Environment (CDE)** (Version 4.0)—provides windows, workspaces, controls, indicators, and a front panel to help users organize and manage work.

## 2. Referenced Documents

The following documents are referenced in this version description document:

- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Kernel Installation Guide (AIX 4.1.4)*, DII.3003.AIX414.IG-1, Inter-National Research Institute (INRI), October 20, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) System Administrator's Guide (HP and Solaris) FINAL Version 3.0.0.3*, DII.3003.Final.UNIX.AG-1, Inter-National Research Institute (INRI), October 29, 1996
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.1 Security Manager's Guide*, DII.31.HPSOL.SMG-1, Inter-National Research Institute (INRI), April 14, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Programming Guide (AIX 4.1.4)*, DII.3003.AIX414.PG-1, Inter-National Research Institute, October 20, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Application Programmer Interface (API) Reference Guide (AIX 4.1.4)*, DII.3003.AIX414.RG-1, Inter-National Research Institute (INRI), October 20, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification Version 2.0*, DII COE I&RTS:Rev 2.0, Inter-National Research Institute (INRI), October 23, 1995.

## 3. Version Description

### 3.1 Inventory of Materials Released

- C Magnetic media: Two 8mm tapes consisting of a relative tar of the DII COE Kernel, Version 3.0.0.3 (AIX 4.1.4)
- C Soft-copy Documentation: One 3.5" floppy diskette (WordPerfect 6.0 for Windows format) containing the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Version Description Document for the Kernel (AIX 4.1.4)*, Document Control No. DII.3003.AIX414.Kernel.VDD-1, October 20, 1997
- C Hard-copy Documentation: Two hard copies of the aforementioned version description document.

### 3.2 Software Changes

This delivery provides a Security Administration capability with Accounts and Profiles software.

### 3.3 Waivers

For system administration and security administration information, users should reference the *DII COE Version 3.0.0.3 System Administrator's Guide (HP and Solaris)*, and the *DII COE Version 3.1 Security Manager's Guide*. These manuals are not being redelivered specifically for AIX since the actual content is unchanged for the AIX build.

## 4. Installation Instructions

Reference the *DII COE Kernel Installation Guide (AIX 4.1.4)* for instructions on installing the DII COE Kernel.

## 5. Known Problems and Errors

### 5.1 DII COE Kernel Known Problems and Errors

The following sections present known problems and errors with the DII COE Version 3.0.0.3 Kernel (AIX 4.1.4). Section 5.1.1 contains previously reported known problems and errors. Section 5.1.2 contains unreported known problems and errors.



### 5.1.1 Previously Reported Known Problems and Errors

The following table lists known problems and errors reported with the DII COE Version 3.0/B release and remaining open in DII COE Version 3.0.0.3. These problems are listed in order of INRI Number.

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) Known Problems and Errors	
Total Open Known Problems and Errors: [18]	
<b>INRI Number:</b>	RTO00001408
<b>Agency Number:</b>	None.
<b>Short Description:</b>	When a patch and its affected segment were selected together for deinstallation, they did not install.
<b>Long Description:</b>	When a patch and its affected segment were selected together for deinstallation, neither the patch nor the segment deinstalled. The Installer window returns with no warning to the user, and the patch and its affected segment still appear highlighted in the Currently Installed Segments portion of the window. The workaround is to deinstall the affected segment, which will automatically deinstall the patch as well.
<b>INRI Number:</b>	RTO00001409
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The Installation Log gives conflicting messages when deinstalling multiple patches.
<b>Long Description:</b>	COEInstaller successfully deinstalls two patches selected together for deinstallation (e.g., BRAVO.P1 and TestSeg.P3), but the Installation Log gives conflicting messages: "(E) Could not unlink /h/BRAVO/Patches/h/BRAVO/Patches/P1 Segment (TestSegment BRAVO.P1) successfully deinstalled. Segment (TestSegment BRAVO) successfully deinstalled."
<b>INRI Number:</b>	RTO00001410
<b>Agency Number:</b>	None.
<b>Short Description:</b>	No message appears during segment deinstallation.
<b>Long Description:</b>	No message appears during segment deinstallation. The user does not receive any indication that processing is occurring normally.

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) Known Problems and Errors	
<b>INRI Number:</b>	RTO00001411
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The Installer window initially becomes too long for the screen after reading the TOC.
<b>Long Description:</b>	The Installer window initially becomes too long for the screen after reading the TOC (for a tape with 28 segments); as a result, the user cannot use the Install or Exit buttons without first resizing the window via the Size option in the left corner of window.
<b>INRI Number:</b>	RTO00001412
<b>Agency Number:</b>	None.
<b>Short Description:</b>	In the Installer's Select Source window, a DAT defaults to an Exabyte device.
<b>Long Description:</b>	In the Installer's Select Source window, a DAT defaults to an Exabyte device. Currently on AIX, both DAT and Exabyte settings default to an Exabyte device. This is not technically accurate.
<b>INRI Number:</b>	RTO00001423
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The COEInstaller does not remove patch segments in the proper order.
<b>Long Description:</b>	The COEInstaller does not remove patch segments in the proper order. According to the I&RTS, "The COEInstaller software assumes that higher numbered patches must be removed before a lower numbered patch can be removed." Patches, however, can be removed out of sequence order. This problem is repeatable.
<b>INRI Number:</b>	RTO00001428
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The Menu Banner still appears when the screen screen saver is on.
<b>Long Description:</b>	When a screen lockout occurs (password needed), the SysAdmin security banner and menu bar still appear (AIX 4.1.4 only).

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) Known Problems and Errors	
<b>INRI Number:</b>	RTO00001430
<b>Agency Number:</b>	None.
<b>Short Description:</b>	Problem with Patches directories after installations and deinstallations.
<b>Long Description:</b>	After deinstalling a patch, the Patch directory is removed but the links to that directory are still present. After de-installing, the following message appears: "Patches: A file or directory in the path name does not exist."
<b>INRI Number:</b>	RTO00001431
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The Installer installs multiple patches that are listed inconsistently within the directory structure.
<b>Long Description:</b>	Patch segments are listed inconsistently within the directory structure. Under the Patches directory of the affected segment, the patches are listed by patch number as well as by SegName. For example, under /h/Test20/Patches, the following listing appears: P2 P3 P4 P5 Test20.P3. This is curious because P3 is the same as Test20.P3; however, Test20.P3 is an empty directory. P3, on the other hand, is the full segment. After de-installing all patch segments, Test20.P3 remains an empty directory.
<b>INRI Number:</b>	RTO00001432
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The Installer does not warn the user that patch and software segment types are already installed when selected for installation.
<b>Long Description:</b>	The Installer does not warn the user that patch and software segment types are already installed when they are selected for installation. This problem seems to be similar to the problem on DEC, where the Installer generates warnings for some segment types (e.g., COTS, aggregates, and AcctGrps) and not for others (e.g., software, data, and patches). Due to a test constraint on the IBM regarding available memory, re-installation of an aggregate segment was not tested.
<b>INRI Number:</b>	RTO00001437
<b>Agency Number:</b>	None.
<b>Short Description:</b>	Required segments must already be installed before loading a dependent segment.
<b>Long Description:</b>	The Network Installation Server does not load a segment that requires other segments at the same time. The required segments must already be installed before loading a dependent segment.

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) Known Problems and Errors	
<b>INRI Number:</b>	RTO00001438
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The Requires and Conflicts buttons do not work on the Network Installation Server
<b>Long Description:</b>	Using the Network Installation Server, the operator could not check the Requires and Conflicts files of the loaded segments because the buttons do not work.
<b>INRI Number:</b>	RTO00001439
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The SegInfo file contains incorrect platform information for UNIX.
<b>Long Description:</b>	The SegInfo file under /h/COTS/UNIX/SegDescrip still contains SPARC/SOL information in the [Hardware] descriptor for both Digital UNIX and AIX. The descriptor should reflect the appropriate hardware entries. This has no affect on functionality and cannot be viewed anywhere in the system.
<b>INRI Number:</b>	RTO00001440
<b>Agency Number:</b>	None.
<b>Short Description:</b>	DNS issues with changing the local machine IP address to an address beyond the network.
<b>Long Description:</b>	If DNS is set up and the user tries to change the local machine IP address to an address beyond the network (e.g., 255.255.255.255), the system hangs. The user must boot from the AIX CD and then run SMIT to reset the IP address.
<b>INRI Number:</b>	RTO00001441
<b>Agency Number:</b>	None.
<b>Short Description:</b>	The user can change his or her IP address to another address being used on the network.
<b>Long Description:</b>	The user can change his or her IP address to another address being used on the network. No warning appears. Both systems then hang. The user must boot from the AIX CD and then run SMIT to reset the IP address.

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) Known Problems and Errors	
<b>INRI Number:</b>	RTO00001442
<b>Agency Number:</b>	None.
<b>Short Description:</b> When logging into a terminal emulator window as sysadmin, the following message appears: "resize command not found".	
<b>Long Description:</b> When logging into a terminal emulator window as sysadmin, the following message appears: "resize command not found".	
<b>INRI Number:</b>	RTO00001443
<b>Agency Number:</b>	None.
<b>Short Description:</b> Error message for duplicate IP address is misleading.	
<b>Long Description:</b> The error message that appears when a duplicate host name is entered is "NAME EXISTS." The same message is used when a duplicate IP address is entered, which is misleading. The error message should indicate that the IP address is a duplicate, such as "DUPLICATE ADDRESS."	
<b>INRI Number:</b>	RTO00001444
<b>Agency Number:</b>	None.
<b>Short Description:</b> If the host name is changed using the pull-down button associated with the Host Name field, no error checking occurs.	
<b>Long Description:</b> When the host name is changed using the selection from the pull-down to the right of the Host Name field, no error is presented for selection of an existing host name.	

### 5.1.2 Unreported Known Problems and Errors

The following table lists known problems and errors with the DII COE Version 3.0.0.3 Kernel (AIX 4.1.4). These problems are listed in order of INRI Number.

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) Known Problems and Errors	
Total Open Known Problems and Errors: [2]	
<b>INRI Number:</b>	RTO00002070
<b>Agency Number:</b>	None.
<b>Short Description:</b>	yp source files are removed if domain name is not entered when configuring nis
<b>Long Description:</b>	When configuring nis, the yp source files (located in the sub-directory /var/yp) are removed if the domain name is not specified. Workaround: Ensure the domain name is specified.
<b>INRI Number:</b>	RTO00002071
<b>Agency Number:</b>	None.
<b>Short Description:</b>	COEInstaller displays \$DISK error during installation of Sample Segments.
<b>Long Description:</b>	During installation of the Sample Segments (SampleSW, SampleAcctGrp, SampleAgg, SampleAggChild) the Installer detects the following error: "missing size for \$DISK keyword". However, the Installer indicates that the segments were successfully installed. In addition, VerifySeg (executed with verbose) did not indicate any error for these segments. Workaround: None

## 5.2 COTS Known Problems and Errors

The following sections list COTS known problems and errors with the DII COE Version 3.0.0.3 Kernel (AIX 4.1.4). Section 5.2.1 contains previously reported known problems and errors. Section 5.2.2 contains unreported known problems and errors.

### 5.2.1 Previously Reported Known Problems and Errors

The following table lists COTS known problems and errors with the DII COE Version 3.0/B Kernel (AIX 4.1.4) and remaining open for DII COE Version 3.0.0.3.

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) COTS Known Problems and Errors	
Total Open Known Problems and Errors: [2]	
<b>INRI Number:</b>	RTO30000028
<b>Agency Number:</b>	None.
<b>Short Description:</b> Mount New for a floppy device does not work, even though the user can read from the floppy device via tar.	
<b>Long Description:</b> Mount New for a floppy device does not work, even though the user can read from the floppy device via tar (using /dev/fd0). A window appears stating: "An error occurred during processing. The operation was not successful." This problem occurs on the IBM AIX platform.	
<b>INRI Number:</b>	RTO30000029
<b>Agency Number:</b>	None.
<b>Short Description:</b> When logged in as sysadmin or secman, the user can log into terminal emulator windows without entering a password.	
<b>Long Description:</b> When logged in as sysadmin or secman, the user can log into terminal emulator windows without entering a password by using the File Manager>File>Open Terminal option. This is an issue with CDE.	

## 5.2.2 Unreported Known Problems and Errors

The following table lists COTS known problems and errors with the DII COE Version 3.0.0.3 Kernel (AIX 4.1.4).

DII COE Version 3.0.0.3 Kernel (AIX 4.1.4) COTS Known Problems and Errors	
Total Open Known Problems and Errors: [1]	
<b>INRI Number:</b>	RTO30000181
<b>Agency Number:</b>	None.
<b>Short Description:</b>	User cannot log into a Global Account after it was successfully created.
<b>Long Description:</b>	After successfully creating a Global Account, all attempts failed to try and log into the global account from the CSE XDM. Workaround: None

## 6. Release Notes

### General

1. The IBM RISC 6000 has proved to be a more stable platform than the IBM Power PC when installing the DII COE Kernel and performing segment installations.
2. When peripherals are added, including the floppy drive, SMIT must be used to configure the device.
3. The Accounts and Profiles subsystem works only on the IBM Power PC. The IBM RISC 6000 is not supported for Accounts and Profiles.

### COE Kernel

1. Installation of the AIX 4.1.4 Operating System is a *destructive installation* because installation removes any previously installed software. Your disk will be overwritten as part of the installation process and all data will be lost.
2. The C2 security level (auditing feature) is running automatically at installation time.
3. Multi-head and multi-eye configurations are not supported.
4. Classifications cannot be assigned to profiles.



5. Although `localhost` is available for selection in the Change Machine ID window, it *should not* be selected. Selecting `localhost` makes all login accounts inaccessible after the machine is rebooted. The machine must then be booted in single-user mode to correct the problem.
6. The AIX Operating System does not support the mounting of floppy devices.
7. When using the Disk Manager to export directories that are to be used by COEInstaller or the Network Installation Server, then the following export options should be used:

```
rw,anon=0,root=HostName1[:HostName2,...]
```

where `HostName` is the name of the host that will be mounting from this host.

8. At the end of the kernel load process, the user must enter the `sysadmin` password immediately. If the user does not enter the password immediately, the password program will skip over the `sysadmin` password and proceed to the `secman` password. After reboot, the user must log in as `root` and run the `passwd` command for the `sysadmin` user.

## COEInstaller Tool

1. The `AcctGrp` descriptor supports only one entry.
2. The default tape drive for AIX 4.1.4 is `/dev/rmt0` (rewind) and `/dev/rmt0.1` (no rewind).
3. The `Installation Log` only logs segment processing for the last segment(s) selected from the current installation.
4. No help options are available.
5. Disk space is not checked on `/h/data/global` when installing a global data segment.
6. NIS and Domain Name Service (DNS) servers are not updated when processing the `Network` descriptor.
7. The `$HOME_DIR` keyword in the `Requires` descriptor is not processed.

8. In order for network installation to work, the `/h/data/global` directory must be mounted from a machine that has been designated as the network installation master. If the `/h/data/global` directory is not mounted, then the `Disk Manager` must be used to export it from the machine that has been designated the master to the machine that needs to mount it. In addition, the machine that the segments are being installed from must be in the target machine's local host file or, if the machine is running DNS, the machine must be in the DNS file.
9. The Network Installation Server does not automatically export the disk partition that is loaded with segments. This partition must be exported explicitly using the `Disk Manager`. If the machine is the network installation master and also has segments loaded on it under the partition that contains `/h`, then this partition should be exported without exporting `/h/data/global`.
10. Refreshing the `Installer` window takes progressively longer depending on the number of installed segments. At certain times during the installation, no window may be present. Regardless of whether or not the window is present, the installation is still progressing.
11. If the `REMOTE` option is chosen from the `Select Source` window, you cannot use the `HOSTS` list from the `NAME` toggle when DNS is running. The `Read Contents` will fail. The workaround is to type the host name in the `HOSTS` field without the domain extension instead of selecting a host from the `HOSTS` list.

### **COEAskUser, COEInstError, COEMsg, COEPrompt, and COEPromptPasswd**

1. The `COEAskUser`, `COEInstError`, `COEMsg`, `COEPrompt`, and `COEPromptPasswd` tools support multi-line text. The following example uses the `COEMsg` tool to show how to display text over multiple lines:  

```
COEMsg "this is line 1 \  
This is line 2 \  
This is the 3rd line"
```
2. The `COEInstError` process presently does not stop the processing of an installation. It will display an installation error message and return a `-1` status code to the calling process. The calling process (i.e., `PostInstall`) must perform any cleanup to return a failed error status to the `COEInstaller`, which can then stop the installation.

### **COEUpdateHome Tool**

1. `COEUpdateHome` must be run from within the directory of the script that the user is trying to update (typically the segment directory).